

AMENDMENTS TO THE CLAIMS:

(1) Please cancel claims 1-9 without prejudice or disclaimer of the subject matter thereof.

(2) Please add new claims 10-27.

Listing of Claims:

Claims 1-9 (Canceled).

Claim 10 (New): A rotor system for converting energy from a stream of fluid, said rotor system comprising:

a central hub rotatable about an axis generally parallel to a fluid flow; and
a plurality of vane units radially arranged around said hub, each of said vane units having an inner airfoil section and a frontwardly protruding vane section, said inner airfoil section extending substantially outwards radially from said central hub at a slight rearward angle between 5 and 60 degrees from normal, said frontwardly protruding vane section being integrally formed to the free end of said inner airfoil section and generally orientated towards the direction of rotation, each of said vane units being generally twisted in a pitch angle about said hub that is generally parallel to the resultant flow direction so as to maximize the lift forces obtained from the resultant flow and converting into available torque;

wherein said frontwardly protruding vane section having a length greater than its width, and an airfoil cross section that diminishes in chord length to form a curved outpoint leading into the resultant fluid flow.

Claim 11 (New): The rotor system as set forth in claim 10, wherein said frontwardly protruding vane section has a length at least equal to the length of said inner airfoil section from the same said centroid, when measured from said frontwardly protruding vane section's outer tip to a centroid of area of said vane unit.

Claim 12 (New): The rotor system as set forth in claim 10, wherein said vane units being able to articulate about their individual mounting point central lines onto said hub to enable speed control.

Claim 13 (New): The rotor system as set forth in claim 10, wherein said frontwardly protruding vane section of each vane unit further comprising at least one defined slot within an outer section of said frontwardly protruding vane section, said slot being set approximately normal to the resultant flow past said frontwardly protruding vane section.

Claim 14 (New): The rotor system as set forth in claim 13, wherein said slot is curved, and narrow with smoothly rounded exit edges so as to direct a portion of the fluid flow through to a rearward face of said vane unit thereby providing an increase of lift forces in this region.

Claim 15 (New): The rotor system as set forth in claim 14, wherein said outer section of said frontwardly protruding vane section forms a secondary airfoil cross section enabling a large increase in the coefficient of lift in said outer section, said secondary airfoil cross section being adapted to balance a front section of said frontwardly protruding vane section area having a lesser coefficient of lift per unit area allowing for equilibrium to be maintained due to moment forces about the central line passing through the centroid area of said vane unit and normal to said hub.

Claim 16 (New): The rotor system as set forth in claim 15, wherein said front section of said frontwardly protruding vane section has a total mass equal to the total mass of said outer section.

Claim 17 (New): The rotor system as set forth in claim 10 further comprising a generating unit attachable to said hub.

Claim 18 (New): The rotor system as set forth in claim 10 further comprising an annular rim attached to the forward most perimeters of said vane units.

Claim 19 (New): The rotor system as set forth in claim 10 further comprising a second rotor system adjacent said rotor system, said second rotor system having a hub and a plurality of vane units radially arranged around said hub, said second rotor system having a differing rotation direction and vane pitch angle than said adjacent rotor system.

Claim 20 (New): The rotor system as set forth in claim 19, wherein said hub of said rotor system being attachable to a first shaft, and said hub of said second rotor system being attachable to a second shaft.

Claim 21 (New): A rotor system comprising:

a central hub rotatable about an axis generally parallel to a fluid flow; and

a plurality of vane units radially arranged around said hub, each of said vane

units having an blade section extending outwardly from said hub and an

vane section frontwardly projecting into the incoming fluid flow and

integrally formed with the free end of said blade section;

wherein said blade section has a rearward inclination between 1 and 60 degrees

towards the fluid flow exit direction, said blade section further comprising

an airfoil shaped surface facing generally towards the rotation direction;

wherein said vane section being integrally formed with the free end of said blade

section and projects frontwardly into the resultant fluid flow, said vane

section having a length more than its width, and a diminishing convex

surface generally normal to incoming fluid flow, said vane section being

positioned orientated generally toward the direction of rotation thereby

producing said vane unit having a generally L-shaped configuration, said

L-shape containing at junction of its inner leading edges a radius of less than vane section length;

wherein said vane units having a pitch angle, formed between the leading and

trailing tips of said vane units and said hub axis, as being slanted

frontwardly towards the direction of rotation, said pitch angle being

adapted to enable lift forces formed by the fluid flowing past the vane units

to revolve said rotor system in the direction of rotation about its central

axis of rotation;

wherein said vane section of each vane unit further comprising at least one

defined slot within an outer rear section of said vane section, said slot

being set approximately normal to the resultant flow past said vane section.

Claim 22 (New): The rotor system as set forth in claim 21, wherein said slot is curved and narrow with smoothly rounded exit edges so as to direct a portion of the fluid flow through to a rearward face of said vane unit thereby providing an increase of lift forces in this region.

Claim 23 (New): The rotor system as set forth in claim 22, wherein said outer rear section of said vane section forms a secondary airfoil cross section enabling a large increase in the coefficient of lift in said outer rear section, said secondary airfoil cross section being adapted to balance a front section of said vane section area having a lesser coefficient of lift per unit area allowing for equilibrium to be maintained due to moment forces about the central line passing through the centroid area of said vane unit and normal to said hub, and wherein said front section of said vane section has a total mass equal to the total mass of said outer rear section.

Claim 24 (New): The rotor system as set forth in claim 21, wherein said vane units being able to articulate about their individual mounting point central lines onto said hub to enable speed control.

Claim 25 (New): The rotor system as set forth in claim 21, wherein said hub has a diameter between 0.05 and 0.75 of the total diameter of said rotor system, and wherein said hub increases in diameter in a smoothly curved cone shape towards its rear to direct fluid flow outwards and rearwards without imparting excessive turbulence.

Claim 26 (New): The rotor system as set forth in claim 21 further comprising a second rotor system adjacent said rotor system, said second rotor system having a hub and a plurality of vane units radially arranged around said hub, said second rotor system having a differing rotation direction and vane pitch angle than said adjacent rotor system, wherein said hub of said rotor system being attachable to a first shaft, and said hub of said second rotor system being attachable to a second shaft.

Claim 27 (New): A rotor system comprising:

a central hub rotatable about an axis generally parallel to a fluid flow; and
a plurality of vane units radially arranged around said hub, each of said vane units having an blade section extending outwardly from said hub and an vane section frontwardly projecting into the incoming fluid flow and integrally formed with the free end of said blade section;

wherein said blade section has a rearward inclination between 1 and 60 degrees towards the fluid flow exit direction, said blade section further comprising an airfoil shaped surface facing generally away from the rotation direction;

wherein said vane section being integrally formed with the free end of said blade section and projects frontwardly into the incoming fluid flow, said vane section having a length more than its width, and a diminishing convex surface generally normal to the fluid flow and facing the incoming flow at least in part, said vane section being positioned orientated generally toward the direction of rotation thereby producing said vane unit having a generally L-shaped configuration;

wherein said vane units having a pitch angle, formed between the leading and trailing edges of said vane units and said hub axis, as being slanted frontwardly towards the direction of rotation.